2011-01-06

The Paradoxical Effect Of Permitting Emissions

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To aim of this short essay is to review the market oriented approach inherent in emissions trading and emission charges. It explaisn the mechanisms of emissions trading and to suggest some possible advantages associated with such mechanisms. In addition, it briefly sest out the thinking underlying emission charges in Europe and Japan and considesr some drawbacks of the existing schemes.

Abstract:

Progress has been made from the "either-or-scenario", whereby environmentalists regarded the market as an implacable enemy. The market is instead proving to be a potentially powerful ally. The rigidity of the traditional regulatory system with its mandatory approach is far from the ideal. An economic incentives approach has special merit in that it allows polluters a certain freedom of choice in the matter of compliance with pollution thresholds. This has important implications in the area of information. One of the barriers to perfect information is the private nature of information. Freedom of choice of policy in regard to achieving environmental goals means that individual firms can, by basing their options on the inherently superior information available to them, reach common objectives at minimum cost. Technical innovations, spurred on by economic incentives and superior information, should make attainment of standards easier.

The US programme issues emissions reduction credits calculated on the surplus reductions in excess of predetermined standards on a baseline date. As only existing polluters receive credits, this approach is known as "grand fathering". Various rules cover the subsequent accumulation and use of credits.

Europe and Japan favour emissions charges. The general principle underlying such taxes is to make the polluter pay. Helm and Pearce enumerate the problems associated with such taxes in their income and their substitution effects.

The U.S. Clean Air Act 1955 (As Amended in 1970 and 1977):

The original thrust of the Act was one of "command-and-control". Ambient standards define the upper limits of concentration of specified pollutants in the (ambient) air. This standard is technology based, i.e. having opted for a suitable control technology, the control authority sets an emission standard based on the reductions achievable by the favoured technology. A bias in technology (and therefore standards) is introduced for new emitters and for existing emitters where ambient standards are difficult to achieve. Responsibility for standards and controls is shared between federal and state governments. The amendments of 1970 and 1977 attempt to invest the legislation with greater flexibility. The mechanism of emissions-trading was initiated to provide pollution sources with wider scope in the methods used to meet the legal requirements of the Act. The trading mechanism allows any source managing to reduce emissions, at any discharge point below the legal ceiling to apply to the control authority for an "emission reduction credit" (ERC).

ERCs:
These are official certificates, defined in terms of a specified amount of a particular pollutant, which can be used to satisfy emission standards at other discharge points under the control of the source, or sold to other emitters. Because of this transferability, emission reduction credits are a currency. This currency can then be used in emissions trading to minimise the costs to polluters of compliance with legal standards.

Emissions Trading.

As ERCs represent currency in emissions trading, rules have been formulated for their accumulation and disposal.

(a) "Offsets" Major new or expanding sources are only allowed into "non attainment" areas (where air quality is worse than the ambient standards) on production of "offsets" i.e. sufficient offsetting emission reductions (ERCs in fact) from existing firms to ensure better air quality after their entry or expansion in the area.

(b) "Bubbles": Total emissions from "bubbles" are controlled leaving the choice of level of emission from each discharge point to the emitters within the

"bubble". ERCs can be obtained for "high performing" points and transferred to "low-performing" points provided that the overall emissions from the "bubble" do not exceed the aggregate of the standards per discharge point within the "bubble". it is important to note that the "bubble" encloses only multiple outlets under the control of existing emitters. new or expanding sources are excluded.

(c) "Netting": This constitutes a regulatory relief in that it provides modifying or expanding sources with a means of avoiding the control consequences attendant on the creation of new emission sources, including the need for "offsets". "Netting" requires that the net increase in emissions (including ERCs earned elsewhere in the plant) is below a specified ceiling.

(d) "Emissions Banking": Firms may accumulate certified ERCs for subsequent use in (a), (b), or (c) above or for sale to others.

Some advantages of the regulations governing the accumulation and disposal of ERCs suggest themselves: - "Offsets" could act as a catalyst to effect an economically desirable outcome i.e. an integrated process of growth and environmental protection. The absence of "offsets" in the US context, assuming serious intent on the part of the authorities, is a policy of exclusion. Emission standards could only be enforced by refusing entry to new or modifying sources, effectively sacrificing growth for cleaner air. Obviously the latter option would have not economic merit, being an "all-or-nothing" approach.

"Bubbles" are legislatively allowed in a multi-plant context as well as within plants. Trading can therefore be extended across different emissions. It is conceivable that such "transplant" trading could be further extended to a "transnational" context, albeit with all the attendant problems of co-operation and complexity.

"Netting" is an attractive relief from sometimes stringent control regulations.

"Emissions Banking" facilitates long-term planning. This could be important in introducing a conscious environmental factor into a firm's capital projections. Clean air would literally represent a tangible asset.

(iii) Emissions Charges

Europe and Japan use charges to control pollution, mainly water pollution. The philosophies underlying the use of effluent charges vary with countries.

(a) France/Netherlands: Charges are used to raise revenue to fund activities designed to improve water quality.

(b) Italy: Charges are designed to speed up the date of achievement of effluent standards. A differential scale of charges is applied penalising "non-achievers" in the intervening period up to the date of compliance. When provisional standards have been met all charges cease.

(c) Germany: Although minimum standards are enforced, dischargers are nevertheless charged on every unit of discharge based on the quantity and harmfulness of the effluent. Again a differential scale is applied but non-compliers are penalised at twice the rate as compliers compared with a 9:1 ratio in Italy.

In the case of France/Netherlands the policy is mainly interventionist, while that of Italy and Germany relies mostly on economic incentives albeit, in the case of the latter, underpinned by enforcement of minimum standards. Air pollution charges exhibit the same divergence of philosophies across borders.

(a) France:Revenues from charges is returned to the payer to subsidise the installation of pollution-control technology - a variant of the use of bribery (with his own money!) to encourage the transgressor to play the game".

(b) Japan: Revenue is used to compensate the victims of pollution - an attempt at the implementation of the classic Pigouvian "polluter pays" principle as opposed to the foregoing Coasean neutrality of the French approach.

Sweden: Taxes and subsidies are used although not in the pure Pigouvian sense. Taxes are imposed on user of cars not equipped with catalytic converters, while subsidies are paid to users equipped with converters.

Again we see the French/Japan using an interventionist approach as against the more obviously incentives-based approach of the Swedes.

Tietenberg enumerates the following drawbacks of the emission charges approach:

(a) Few, if any, of the programmes implemented in this area precisely fit the typical concepts of economists. According to these effluent/emission charges take one form or another - an efficiency charge or a cost-effective charge. The former predicates an efficient outcome by means of compensation i.e. "the polluter pays", while the latter is designed to achieve desired standards at least cost.

(b) Improvements have been small in most cases, due to the low levels at which charges have been set.

(c) Because the revenue from charges is directed to environmental purposes, distortions caused by general taxation remain.

(d) The Swedish experiment, while successful in its environmental objective, has led to an excess of subsidies over taxes i.e. it has not been revenue neutral.

(e) The French system of subsidising the polluters (by means of refund of the charges) has not led to improvement in the quality of the air.

SUMMARY:

The economic incentives approach has much to commend it, particularly the emissions trading programme. Such an approach addresses the classic problem of externalities by attempting to create a market which indirectly places an economic value on the environment. While the environment is not traded, that which degrades it is i.e. emissions. There is now a measurable cost involved in pollution. Emission/effluent charges achieve the same general economic effect but can exacerbate the distortions caused by general taxation. A further complication arises if environmental taxes are imposed unilaterally - the competitiveness of traded goods may be adversely affected. Tax based solutions should ideally be dealt with at an international level when the pollution has global effects. The extension of emissions trading onto the international arena would have special implications for the developing countries under the "grand fathering" system. Since existing polluters would preponderate in the industrialised world, the initial stock of ERCs would be smallest where they were most needed for integrated growth and environmental control, in the Third World. Bias would have to be introduced into the initial allocation in favour of the less-developed countries.

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